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### A novel octamer binding transcription factor is differentially expressed in mouse embryonic cells.

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Okamoto K, Okazawa H, Okuda A, Sakai M, Muramatsu M, Hamada H.

Department of Biochemistry, Faculty of Medicine, University of Tokyo, Japan.

Related Resources

We have identified a novel octamer binding factor (Oct-3) in P19 embryonal carcinoma cells. Oct-3, which recognizes the typical octamer motif (ATTTGCAT) as well as the AT-rich sequence TTAAAATTCA, is present in P19 stem cells but disappears when the cells are induced to differentiate by retinoic acid (RA). Cloned cDNA corresponding to Oct-3 encodes a protein of 377 amino acids. Oct-3 has a conserved POU domain, but the remaining part is distinct from other POU domain-containing proteins such as Oct-1 and Oct-2. mRNA of 1.5 kb coding for Oct-3 is abundant in P19 stem cells but is dramatically repressed during RA-induced differentiation. Repression of the 1.5 kb mRNA is rapid and specific to RA. In mouse, oct-3 mRNA is undetectable in all the adult organs examined. The N-terminal proline-rich region of Oct-3, when fused to the DNA binding domain of c-Jun, functions as a transcriptional activating domain. We suggest that Oct-3 is a novel octamer binding transcription factor that is developmentally regulated during mouse embryogenesis.

PMID: 1967980 [PubMed - indexed for MEDLINE]

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### A POU-domain transcription factor in early stem cells and germ cells of the mammalian embryo.

PubMed Services

Rosner MH, Vigano MA, Ozato K, Timmons PM, Poirier F, Rigby PW, Staudt LM.

Metabolism Branch, National Cancer Institute, Bethesda, Maryland 20892.

Related Resources

The murine oct-3 gene encodes a transcription factor containing a POU-specific domain and a homeodomain. In marked contrast to other homeodomain-encoding genes, oct-3 is expressed in the totipotent and pluripotent stem cells of the pregastrulation embryo and is down-regulated during differentiation to endoderm and mesoderm, suggesting that it has a role in early development. The oct-3 gene is also expressed in primordial germ cells and in the female germ line.

PMID: 1972777 [PubMed - indexed for MEDLINE]

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